Jonathan,

I didn't get many hits (records) when I searched copper iodate. I tried broadening the search with cupric iodate etc. but didn't get any additional hits. I also searched a wide variety of files: material science files - Copper, and metals (Metadex); fuel cell related - Energy, general science - Conferences (Confsci) Scisearch Electrical .... you get the idea.

John

703-308-4139

=> file hca

FILE 'HCA' ENTERED AT 11:23:12 ON 03 DEC 2003
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=> d his nofile

(FILE 'HOME' ENTERED AT 10:44:33 ON 03 DEC 2003)

FILE 'HCA' ENTERED AT 10:45:01 ON 03 DEC 2003
E US20030049530/PN
L1 1 SEA ABB=ON PLU=ON US2003049530/PN
D SCAN
SEL L1 RN

FILE 'REGISTRY' ENTERED AT 10:45:20 ON 03 DEC 2003
L2 11 SEA ABB=ON PLU=ON (1310-58-3/BI OR 1313-13-9/BI OR 1314-13-2/BI OR 13454-89-2/BI OR 310881-75-5/BI OR 39464-64-7/BI OR 500731-88-4/BI OR 7440-44-0/BI OR 7440-66-6/BI OR 7704-34-9/BI OR 7782-42-5/BI)
D SCAN
L3 1 SEA ABB=ON PLU=ON L2 AND IODIC

```
     FILE 'HCA' ENTERED AT 10:46:20 ON 03 DEC 2003
L4           73 SEA ABB=ON  PLU=ON  L3
L5       242477 SEA ABB=ON  PLU=ON  FUELCELL? OR BATTERY? OR BATTERIES? OR
                (FUEL? OR ELECTROCHEM? OR ELECTRO(W)CHEM? OR GALVAN? OR
                ELECTROLY? OR SECONDAR? OR PRIMAR?)(2A)CELL? OR FC OR SOFC OR
                DFC OR PEMFC
L6       700600 SEA ABB=ON  PLU=ON  ELECTROD## OR ANOD### OR CATHOD###
                 D L1 ABS
L7           73 SEA ABB=ON  PLU=ON  (CU OR COPPER#)(A)IODATE?
L8           95 SEA ABB=ON  PLU=ON  L4 OR L7
L9            4 SEA ABB=ON  PLU=ON  L8 AND L5
L10           5 SEA ABB=ON  PLU=ON  L8 AND L6
L11           3 SEA ABB=ON  PLU=ON  L9 AND L10
                D SCAN
L12           6 SEA ABB=ON  PLU=ON  L9 OR L10 OR L11
L13           3 SEA ABB=ON  PLU=ON  L12 NOT L11

     FILE 'WPIX, JAPIO' ENTERED AT 11:01:54 ON 03 DEC 2003
L14           7 SEA ABB=ON  PLU=ON  L7
L15      353275 SEA ABB=ON  PLU=ON  L5
L16     1043862 SEA ABB=ON  PLU=ON  L6
L17           2 SEA ABB=ON  PLU=ON  L14 AND L16
L18           1 SEA ABB=ON  PLU=ON  L14 AND L15
L19           2 SEA ABB=ON  PLU=ON  L17 OR L18
                D SCAN

     FILE 'COMPENDEX, INSPEC' ENTERED AT 11:05:02 ON 03 DEC 2003
L20           6 SEA ABB=ON  PLU=ON  L7
L21           0 SEA ABB=ON  PLU=ON  L20 AND L6
L22           0 SEA ABB=ON  PLU=ON  L20 AND L5


     FILE 'INSPHYS, JICST-EPLUS, METADEX, SCISEARCH, SOLIDSTATE' ENTERED AT
     11:08:24 ON 03 DEC 2003
L23           3 SEA ABB=ON  PLU=ON  L7
L24           0 SEA ABB=ON  PLU=ON  L23 AND L6
L25           0 SEA ABB=ON  PLU=ON  L23 AND L5
                D SCAN L23

     FILE 'RUSSCI, CONFSCI, ENERGY' ENTERED AT 11:11:36 ON 03 DEC 2003
L26           3 SEA ABB=ON  PLU=ON  L7
L27      106281 SEA ABB=ON  PLU=ON  L6
L28           0 SEA ABB=ON  PLU=ON  L26 AND L27

     FILE 'COPPERLIT, CORROSION, NTIS' ENTERED AT 11:16:15 ON 03 DEC 2003
L29           5 SEA ABB=ON  PLU=ON  L7
L30       53993 SEA ABB=ON  PLU=ON  L6
L31           2 SEA ABB=ON  PLU=ON  L29 AND L30
                D SCAN

     FILE 'REGISTRY' ENTERED AT 11:17:28 ON 03 DEC 2003
                D L3 FIDE

     FILE 'WPIX' ENTERED AT 11:18:02 ON 03 DEC 2003
L32          18 SEA ABB=ON  PLU=ON  (COPPER# OR CUPRIC# OR CUPROUS# OR
                CUPRITE#)(2A)(?IODATE?)
L33           2 SEA ABB=ON  PLU=ON  L16 AND L32
                D SCAN
```

FILE 'JAPIO' ENTERED AT 11:22:09 ON 03 DEC 2003
L34 2 SEA ABB=ON PLU=ON (COPPER# OR CUPRIC# OR CUPROUS# OR CUPRITE#)(2A)(?IODATE?)
L35 0 SEA ABB=ON PLU=ON L16 AND L34

=> d L11 1-3 ibib abs hitind hitrn

L11 ANSWER 1 OF 3 HCA COPYRIGHT 2003 ACS on STN (Author's Record)
ACCESSION NUMBER: 138:224220 HCA
TITLE: Alkaline **battery** with **copper iodate cathode**
INVENTOR(S): Wang, Francis P.; Xue, J. Simon; Anglin, David; Rozelle, James; Drennan, Joseph; Wang, Enoch I.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003049530	A1	20030313	US 2001-941526	20010829

PRIORITY APPLN. INFO.: US 2001-941526 20010829

AB An alkaline cell has an **anode** comprising zinc, an alkaline electrolyte solution, a separator, and a **cathode** comprising **copper iodate**. The **cathode** preferably also includes a graphitic carbon to improve elec. conductivity The graphitic carbon can comprise natural or synthetic graphites including expanded graphites and graphitic carbon fibers. Preferably, the graphitic carbon comprises graphitic carbon nanofibers. The carbon nanofibers desirably have a mean average diameter less than 500 nm. The **cathode** can also include sulfur in admixt. with the **copper iodate** to improve cell performance.

IC ICM H01M004-48
ICS H01M004-62; H01M004-58
NCL 429220000; 429232000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery copper iodate cathode**
IT **Battery cathodes**
Primary **batteries**
(alkaline **battery** with **copper iodate cathode**)
IT Carbon fibers, uses
RL: DEV (Device component use); USES (Uses)
(nanofibers; alkaline **battery** with **copper iodate cathode**)
IT Zinc alloy, base
RL: DEV (Device component use); USES (Uses)
(alkaline **battery** with **copper iodate cathode**)
IT 1310-58-3, Potassium hydroxide (K(OH)), uses 1313-13-9, Manganese

dioxide, uses 7440-66-6, Zinc, uses **13454-89-2, Copper iodate**
RL: DEV (Device component use); USES (Uses)
(alkaline **battery** with **copper iodate cathode**)

IT 1314-13-2, Zinc oxide (ZnO), uses 7704-34-9, Sulfur, uses 39464-64-7, Rm-510 310881-75-5, Waterlock a-221
RL: MOA (Modifier or additive use); USES (Uses)
(alkaline **battery** with **copper iodate cathode**)

IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(expanded; alkaline **battery** with **copper iodate cathode**)

IT 500731-88-4, Carbopol C 940
RL: MOA (Modifier or additive use); USES (Uses)
(gelling agent; alkaline **battery** with **copper iodate cathode**)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(graphitic; alkaline **battery** with **copper iodate cathode**)

IT **13454-89-2, Copper iodate**
RL: DEV (Device component use); USES (Uses)
(alkaline **battery** with **copper iodate cathode**)

L11 ANSWER 2 OF 3 HCA COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 132:125374 HCA
TITLE: Secondary nonaqueous electrolyte **batteries**
INVENTOR(S): Okamura, Kazuhiro; Nitta, Yoshiaki
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000048816	A2	20000218	JP 1998-217252	19980731

PRIORITY APPLN. INFO.: JP 1998-217252 19980731

AB The **batteries** have Li intercalating **anodes** and metal iodate **cathodes**.

IC ICM H01M004-58
ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium **battery** metal iodate **cathode**

IT **Battery cathodes**
(metal iodate **cathodes** for secondary lithium **batteries**)

IT 22446-84-0, Zirconium iodate [Zr(IO3)4] 29515-61-5, Ferric iodate 256459-53-7, Cobalt iodide oxide (CoI3O9) 256459-54-8, Cobalt iron iodide oxide (Co0.01Fe0.99I3O9)
RL: DEV (Device component use); USES (Uses)
(metal iodate **cathodes** for secondary lithium **batteries**)

registry number for Copper Iodate

IT **13454-89-2**
RL: DEV (Device component use); USES (Uses)
(α- and γ-; metal iodate **cathodes** for secondary lithium **batteries**)

IT **13454-89-2**
RL: DEV (Device component use); USES (Uses)
(α- and γ-; metal iodate **cathodes** for secondary lithium **batteries**)

L11 ANSWER 3 OF 3 HCA COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 124:187877 HCA
TITLE: Electric work and equivalent galvanic potential of non-redox coupling in **galvanic cell**
AUTHOR(S): Jianjun, Huang; Wenjie, Zheng; Ningxing, Huang
CORPORATE SOURCE: Editorial Dept. of Journal, Jinan Univ., Canton, 510632, Peop. Rep. China
SOURCE: Huanan Shifan Daxue Xuebao, Ziran Kexueban (1995), (1), 97-101
CODEN: HSDZER; ISSN: 1000-5463
PUBLISHER: Huanan Shifan Daxue
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB The non-redox reaction produced in **galvanic cells** is the reaction of doing elec. work. The maximum elec. work done by the non-redox reaction is equal to its standard change in free energy, ΔG.vphi.. It may be described in terms of the equivalent galvanic potential, ϕe, for the maximum effect of the non-redox reaction. The contribution of non-redox reaction to **electrode** potential is discussed using **electrode** reactions.

CC 72-2 (Electrochemistry)
Section cross-reference(s): 65

ST elec work equiv galvanic potential; nonredox coupling **galvanic cell**; std change free energy nonredox reaction

IT 534-16-7, Silver carbonate 1309-33-7, Ferric hydroxide 1317-37-9, Ferrous sulfide 1345-07-9, Bismuth sulfide 7446-14-2, Lead sulfate 7758-89-6, Cuprous chloride 7779-90-0, Zinc phosphate 7783-40-6, Magnesium fluoride 7783-90-6, Silver chloride, properties 7783-96-2, Silver iodide 7784-01-2, Silver chromate 7787-64-6, Bismuth iodide 10049-01-1, Bismuth phosphate 10101-63-0, Lead iodide (PbI2) 10294-40-3, Barium chromate 11113-75-0, Nickel sulfide 12054-48-7, Nickel hydroxide (Ni(OH)2) **13454-89-2, Copper iodate** (**Cu**(IO3)2) 13767-71-0, Cupric iodide 15385-58-7, Mercurous bromide (Hg2Br2) 18624-44-7, Ferrous hydroxide 18820-29-6, Manganous sulfide 18933-05-6, Manganese hydroxide 19783-14-3, Lead hydroxide 20427-58-1, Zinc hydroxide 20427-59-2, Cupric hydroxide 21548-73-2, Silver sulfide (Ag2S) 39377-56-5, Lead sulfide 51595-71-2, Mercury sulfide (Hg2S)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(standard change in free energy in precipitation of)

IT **13454-89-2, Copper iodate** (**Cu**(IO3)2)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(standard change in free energy in precipitation of)

=> d L13 1-3 ibib abs hitind hitrn

L13 ANSWER 1 OF 3 HCA COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 98:24632 HCA
TITLE: Voltammetry of nitrate and iodate ions at copper-cadmium alloy rotating disk **electrodes**
AUTHOR(S): Kvaratskheliya, R. K.; Machavariani, T. Sh.
CORPORATE SOURCE: Inst. Neorg. Khim. Elektrokhim., Tbilisi, USSR
SOURCE: Collection of Czechoslovak Chemical Communications (1982), 47(10), 2615-22
CODEN: CCCCAK; ISSN: 0366-547X
DOCUMENT TYPE: Journal
LANGUAGE: French
AB The difficult-to-reduce anions NO3- and IO3- form well-expressed waves of the processes: NO3- → NO2- and IO3- → I- on rotating disk **electrodes** from Cu-Cd alloys in solns. of alkali metal and alkaline earth metal salts. A change in the composition of the alloy significantly affects the values of the half-wave potentials of the anions. The highest reduction rate of the NO3- and IO3- was observed in the case of an **electrode** of Cd 72-Cu 28 alloy, corresponding to the γ-phase compound Cu5Cd8. A decrease in the hydrophilic nature of the metal from Cd to Cu has no effect on the kinetics of electroredn. of NO3- and IO3-.
CC 72-10 (Electrochemistry)
Section cross-reference(s): 67
ST voltammetry nitrate **iodate copper** cadmium; nitrate voltammetry copper cadmium alloy; iodate voltammetry copper cadmium alloy; copper cadmium alloy disk **electrode**; redn electrochem nitrate iodate alloy; kinetics electroredn nitrate iodate
IT 84058-21-9
RL: PRP (Properties)
(rotating disk **electrodes**, iodate and nitrate reduction kinetics on)
IT 51398-46-0 65449-87-8 69944-09-8
RL: PRP (Properties)
(rotating disk **electrodes**, reduction kinetics of iodate and nitrate on)

L13 ANSWER 2 OF 3 HCA COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 69:54869 HCA
TITLE: Effect of an indifferent electrolyte on the activity of ions of weak acids and precipitates
AUTHOR(S): Vervaet, A.
CORPORATE SOURCE: Rijksuniv., Ghent, Belg.
SOURCE: Mededelingen van de Vlaamse Chemische Vereniging (1968), 30(1), 31-4
CODEN: MVLCA2; ISSN: 0369-2787
DOCUMENT TYPE: Journal
LANGUAGE: Dutch
AB The potential ΔE of a **cell** with an **electrolyte** A in contact with indifferent electrolyte Z was derived by using the Debye-Hueckel theory to find the effect of the concentration when A is a (z1 - z2)-valent precipitate or a weak acid. For Z = KNO3 and A = AgBrO3, AcOH, Cu(IO3)2, and Cd(IO3)2, the measured values agreed with the theory; for A = Ag2SO4 they disagreed because solubility of Ag2SO4 was too high.
CC 68 (Phase Equilibriums, Chemical Equilibriums, and Solutions)
IT Electric potential
(of **electrolytic cells**, activity in relation to)
IT 7783-89-3 7790-81-0 10294-26-5 **13454-89-2**
RL: PRP (Properties)
(activity of, indifferent electrolyte effects on)

IT **13454-89-2**
RL: PRP (Properties)
(activity of, indifferent electrolyte effects on)

L13 ANSWER 3 OF 3 HCA COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 7:20168 HCA
ORIGINAL REFERENCE NO.: 7:2911e-g
TITLE: Cupric Iodate
AUTHOR(S): Spencer, J. F.
CORPORATE SOURCE: London
SOURCE: Z. physik. Chem. (1913), 83, 290-6
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB The pale blue crystalline precipitate, obtained by adding an excess of KIO3 solution to a concentrate solution of Cu(NO3)2, has an H2O and an I2 content which agree with the formula Cu(IO3)2.H2O. The salt is soluble in HNO3. When heated to redness, it breaks up into CuO, I2 and O2. An **electrode** of the third order, Hg,Hg2(IO3)2.Cu(IO3)2,CU'', was devized, and was used to meas. the concentrate of Cu''. The equation for the use of the **electrode** is ε = 0.6060 + 0.0297 log Cu'' at 25°. When used to meas. the concentrate of IO3', ε = 0.4027-0.0595.. log IO3' at 25°. The solubility of Cu(IO3)2 in H2O is 3.30 + 10-3 mols per liter at 25°. Both KIO3 and CuSO4 reduce the solubility normally and do not produce any soluble complex salt. In a saturated aqueous solution of Cu(IO3)2, the concentrate of Cu++ is 7.88 + 10-3 instead of 3.30 + 10-3 which it should be if the compound were completely ionized; that of IO3- is 4.31 + 10-3 instead of 6.60 + 10-3, indicating that the solid Cu(IO3)2 takes up IO3- probably by the formation of a complex mol. which is unstable in solution
CC 6 (Inorganic Chemistry)
IT **13454-89-2, Copper iodate**
(preparation of)
IT **13454-89-2, Copper iodate**
(preparation of)

=> d L18 1 all
YOU HAVE REQUESTED DATA FROM FILE 'WPIX' - CONTINUE? (Y)/N:n

=> file wpix
FILE 'WPIX' ENTERED AT 11:24:33 ON 03 DEC 2003
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FILE LAST UPDATED: 28 NOV 2003 <20031128/UP>
MOST RECENT DERWENT UPDATE: 200377 <200377/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

=> d L18 1 all

L18 ANSWER 1 OF 1 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN

AN 2003-521797 [49] WPIX
DNN N2003-413946 DNC C2003-140230
TI **Electrochemical cell** comprises anode containing anode active material, aqueous alkaline electrolyte solution, separator and cathode containing **copper iodate**.
DC E36 L03 X16
IN ANGLIN, D; DRENNAN, J; ROZELLE, J; WANG, E I; WANG, F P; XUE, J S
PA (ANGL-I) ANGLIN D; (DREN-I) DRENNAN J; (ROZE-I) ROZELLE J; (WANG-I) WANG E I; (WANG-I) WANG F P; (XUEJ-I) XUE J S
CYC 1
PI US 2003049530 A1 20030313 (200349)* 11p H01M004-48
ADT US 2003049530 A1 US 2001-941526 20010829
PRAI US 2001-941526 20010829
IC ICM H01M004-48
ICS H01M004-58; H01M004-62
AB US2003049530 A UPAB: 20030731
NOVELTY - An **electrochemical cell** (810) comprises an anode (815) containing an anode active material, an aqueous alkaline electrolyte solution, a separator and a cathode (812) containing **copper iodate**.
USE - **Electrochemical cell**.
ADVANTAGE - The **electrochemical cell** has improved electrical conductivity using graphitic carbon and improved cell performance using sulfur and **copper iodate**. The running voltage of the cell is reduced and hence increased power and cell life are obtained.
DESCRIPTION OF DRAWING(S) - The figure shows a cross-sectional portion of the alkaline cell.
cell 810
cathode 812
anode 815
Dwg.1/2
FS CPI EPI
FA AB; GI; DCN
MC CPI: E11-N; E33-A03; E35-C; L03-E01A; L03-E01B8; L03-E01C2
EPI: X16-B01A; X16-E01C; X16-E01E; X16-E09; X16-J02; X16-J07

=>